Celanese
The chemistry inside innovation™

CELANYL® XT1 GF30 BK 9005/W/FA - PPA

Description

(NILAMID XT1 GF30 BK 9005/W/FA)
PPA compound, 30% glass fiber reinforced, heat stabilized.
Intended for engineering applications that require a maximum service temperature higher than that of normal aliphatic polyamides. In addition to the outstanding thermal and chemical resistance, it provides high and constant mechanical performance, unaltered even after moisture absorption. Excellent creep behavior and dimensional stability. Suitable for drinking water applications.

Physical properties	Value	Unit	Test Standard
Density	**89.3**	lb/ft³	ISO 1183
Molding shrinkage, parallel (flow)	**0.2 - 0.5**	%	ISO 294-4, 2577
Molding shrinkage, transverse normal	**0.5 - 0.7**	%	ISO 294-4, 2577
Water absorption, 23°C-sat	**4.1**	%	Sim. to ISO 62
Humidity absorption, 23°C/50%RH	**1.4**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**1.74E6/1.74E6**	psi	ISO 527-1, -2
Tensile stress at break, 5mm/min	**29000/-**	psi	ISO 527-1, -2
Tensile strain at break, 5mm/min	**2.1/-**	%	ISO 527-1, -2
Flexural modulus, 23°C	**1.67E6/1.6E6**	psi	ISO 178
Flexural strength, 23°C	**43500/37700**	psi	ISO 178
Charpy impact strength, 23°C	**23.8/-**	ft-lb/in²	ISO 179/1eU
Charpy impact strength, -30°C	**22.8/-**	ft-lb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	**4.28/-**	ft-lb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	**3.81/-**	ft-lb/in²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature, 20°C/min	**612**	°F	ISO 11357-1/-3
DTUL at 1.8 MPa	**509**	°F	ISO 75-1, -2
Flammability @3.2mm nom. thickn.	**HB**	class	UL 94
Flammability @0.8mm nom. thickn.	**HB**	class	UL 94

Electrical properties	Value	Unit	Test Standard
CTI 50 drops	**550**	V	IEC 60112

Other text information

Injection Molding Preprocessing

The XT1 compound is supplied in a moisture-proof package. The maximum humidity content allowed for the injection molding process is 0.10%, but in order to obtain the best performance and avoid possible degradation phenomena we recommend molding with a moisture content < 0.08%. The drying time depends on the initial moisture content and the drying conditions used. Generally 4-6 hours at 120°C with dry air (dew point of about -30°C) are sufficient to prepare a granule stored in unopened packages or with a moisture content of < 0.20-0.25%.

Injection molding

The following conditions apply to the normal injection molding process of XT1 compounds. Machine temperatures: barrel 310-325°C, nozzle and hot runners 325-340°C. Mold temperatures: > 135°C. Back pressure: typically 5 bar (hydraulic pressure). Temperatures exceeding 340°C and long residence time could lead to degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the molded part characteristics. For further details, please contact our technical support team.

Injection Molding Postprocessing

Parts made by XT1, do not change significantly their performance depending on the moisture uptake. Normally, a conditioning cycle is not necessary. After molding, with favorable environmental conditions, a piece can absorb moisture up to 0,2% in 24h and reach the equilibrium during its lifetime. The post-treatment of the parts may include annealing at 150-160°C in the oven, for two to four hours depending on the temperature. This treatment is useful to relax any internal stress and maximize thermomechanical performance.

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Characteristics

Special Characteristics	Chemical resistant, Heat resistant, Improved creep
Product Categories	Glass reinforced
Processing	Injection molding
Regulatory	Drinking water approved
Delivery Form	Granules